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Native Plants

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K. O. Sessions

Problems of the Soil

R. R. McLean



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An Inside View of Soils . . .

By ERIC E. EASTMAN

A perusal of the anniversary number of the Garden Magazine shows that at least the old members of the Floral Association find in the growth of plants and the beauty of flowers the handiwork of the Divine Creator, just as the more mathematically minded see it in the infinite spaces of the heavens. The same hand is also to be found in the infinitesimal wonders of the soil, for soils are vital and dynamic complexities; minute worlds and universes and systems.

To regard soils as merely pulverized rocks in which plants grow is to disregard one of the most fascinating of all the sciences. As the interrelationships of forces within the soil are too complex to be comprehended in their entirety, as they actually occur, the approach to their study is made in three separate fields, physics, chemistry and biology, altho they are simultaneously involved in every soil. It is with the first of these, physics, that a few appropriate seasonal suggestions are appropos.

When we observe our native flora we are at once impressed with the marvelous adaptation of these plants to our soils. Soil types are frequently rather definitely and sometimes strikingly correlated with native plant growth. Plants survive the competition of nature only on those soils which are adapted to their requirements. Seasonal and periodic fluctuations in kind and

character of plant growth respond to the changed soil environment induced by temperature and moisture variations. If the natural flora that is adapted to particular soils met floricultural requirements, culture would be simple and problems few, for the work of ages has developed a wonderful balance and selection. The introduction of foreign varieties, mostly plants not adapted to our soils and climate, upsets the so-called "balance of nature" and thereby introduces problems of irrigation and culture as well as of pest and disease control. The irrigation problem is probably the most important because it is least understood especially by beginners and consequently is the source of great and costly losses as well as much disappointment. Fortunately, by adapting a few simple principles, satisfactory results may be secured.

Even the most elementary treatise on plant physiology which refers to the vital workings of the plant, emphasizes that the three essentials for plant growth are light, air, and water, referring of course to natural light from the sun which is also the source of heat. Somehow, the fact that these requirements extend to the roots of plants also, is not generally understood. The heat requirement under normal growing conditions usually is not a problem, altho it may be a limiting factor under some conditions.

Air, whose active portion consists of the element oxygen in a gaseous condition, is required for the vital processes of root development, as well as for the chemical and biological activities which must be in operation if plants are to survive and grow.

Water is required in the first place for the same vital physiological processes that occur in connection with all life whether of plants or of animals. Secondly, but no less essentially, water is required for the necessary physical, chemical and biological activities that precede or accompany plant growth.

Normally, the best growing conditions occur when the spaces between the soil particles, called pore spaces, are half full of air and half full of water. When this condition occurs, except on adobe and other heavy clay soils, a handful of the soil will adhere into a ball when squeezed in the hand, but breaks up readily when rubbed or twisted. Adobe soils and clay soils form balls that do not break readily, if at all, but in no case should the soil be so wet that water can be squeezed from it by hand; except, of course, immediately after irrigation.

When soils are irrigated, the water displaces the soil air. If a soil is kept saturated, that is; full of water, the roots of plants are deprived of air and eventually become diseased so that the plant ultimately dies.

The pore space of each soil differs from that of other soils. Hence it is not possible to accurately state

(Continued on Page 7)

The Fall Flower Show

By ADA PERRY

Here the fall flower show's come and gone and here am I sitting at the typewriter trying to do a fine, large, excellently staged show—justice . . . I have only the Perry "light touch" to fall back on, since if I became upstage at this late date, people would think Ada had contracted amnesia. . . . Remind me to start being formal gradually—sometime. . . . Think I'll dispense with names, as usual . . . Notice it took about two columns for the names in the Union write up so why should I try to improve on a good job.

And nobody could improve on that flower show, so I'm just going to enjoy it. Please remember when I leave something out, it was my hard luck to miss seeing it . . . I'm expecting to leave plenty of things out because there were so many of them to see.

A table of lath house gloxinias made a luscious beginning at the entrance door. And then came summer lilies and caladiums and tuberous begonias on an island from Eden. You can grow those lilies in your garden, you know. Plant the bulbs this fall and seed houses kindly note "plug" (vulgar radio phrase but expressive).

Of course I giggled at the jitterbug rockery entitled "Thoughts Astray" with its absent minded ice cream cones stuck in helixine moss. That's all right—gardeners can go ga-ga if painters can. There was a good idea for containers in a Rex display—bottom and one side of board and three sides of strong half-inch netting squared and lined with hanging basket moss. Be easy to make. There was a nice lot of dish gardens and a fine exhibit of man-sized cacti, nothing feeble about any of them or the choice of varieties. Liked the fuchsia collections and gravely accepted fuchsia "Bumsted" for Dagwood's sake and its own. It's orange—maybe the color of those spots Dagwood's always seeing before his eyes. There was a cute model lath house and a

corner devoted to a new nursery industry—garden consulting. Some one raised cuphea "Firefly" as nice as the catalogue picture which ought to ease the pain of printing prices on catalogues. There were lots of asters, glory be, and I was glad to see a pretty sprig of platycodon, also that white throated belladonna, called minor evidently and thanks to Union writeup. A fine "stable" of tuberous begonias and other lath house plants suggested that flowers can charm as well as race horses. And that maidenhair fern as big as an abelia made us all proud. The herb lady says you mustn't let your tarragon roots die out because the seeds won't do you any good here, so remember that if you have a precious hunk of real tarragon . . . and we all saw a real taro from the Marquesas which is soothing to the curious. And that vine exhibit attracted lots of attention even from the kindly honoree of one of the fine dahlia exhibits. If I'd been that honoree, I'd have just stood by those dahlias and bowed all afternoon but I expect he's got more modesty. The little porcelain ampelopsis in the vine exhibit won my heart and I looked with due gratitude at the evergreen wisteria which I'd never never even heard of. Though I didn't give it my regards—looked too much like an old fashioned knitted petticoat. There were two metropolitan-opera-like exhibits of dahlias with that handsome rogue Margrace making faces at me because I can't grow it and somebody else can. One of those "somebody else" persons will be a judge at the Cleveland dahlia show this fall. Nice going. There was another dahlia exhibit with flowers twice as large as any you ever saw before. I mean that. Variety Carl G. Dahl, as big as a sombrero and I mean that, took honors. Among the eleven week dahlias was one as big as a second. Delightful. And that sea-shell-spotted Twinkle which is a single, is also very popular.

'Nother paragraph and a deep breath and did you see that Dianthus alpinus hybrid two inches tall in the Shangri La version of a miniature rockery? Darling and evidently growable. Saw something that looks like parrot's feather growing in same La and told the well known rockery artist it was "Parrot's Feather Terra Firma." The remark discouraged him so near the end of the day. Do you realize how hard those chairmen and women and exhibitors worked during a flower show? We ought to provide them with rest cures for a week afterward. That old blue dish Thanksgiving table was besieged by worshipers and here's a suggestion—print a placard with the history and make of your lovely dishes, so other women won't suffer so in the process of not handling them. Loved the "First Thanksgiving" table and other tables. In the usual process of differing with the judges, I fell for the shadow box with white star thumbtacks in its mesembryanthemum. Oh well, judges are right and I'm just happy. Cried over mama deer and arrangement of dwarf cat-tails and bamboo

Here's the one name I'm mentioning and it's our K. O. Sessions' exhibit with its generous placards. Yes, that lovely orange heather is Erica verticillata, oh many thanks to a woman who tells you what you want to know. Of course she has that new ochra shrub that has flowers and flower-like seed fruits. And there were some seedling roses in this unrosy weather—one a cross between your middle western wild rose and Edna Thomas. I've got to stop pretty soon, anyway. But a variegated banana and a mango bloom were nice to see and other deep banked nursery exhibits. They help lots. And oh the dahlias in the amateur sections—Pecae with one white head erect and the other bowed. What a commentary. And I begged that glorious "Mad River Chief" as the price for this article and brag of my good bargain. Goodbye and tune in my "Garden Gate" radio program over KGB on Thursdays at 2:15, will you?

The Flower

THE FLOWER is all-important from the gardeners point of view. He cultivates plants primarily for the flowering stage and only occasionally will look at it with the scientific eye. While we enjoyed the remarkable slides of orchids shown recently by Mr. Pope at the Floral Association meeting, we also were subjected to a mild inoculation of the botany of the family.

Many people, doubtless, left this meeting with more feeling for the structure of this rare and beautiful flower, its ingenious provision for sure cross-pollination. We know now about the lip and its functions, the column or shield and the rostellum-cup. If, and when, we listen again, we will do so more intelligently. Perhaps we may even speak of these things with more warranty.

So much for the orchids. What about other families of the plant kingdom where the structure of the flower and functions are totally different. Do we want to know something of these too? A recent book on the subject impresses me as being valuable where the gardener wants to know something more about the flower than is generally expected of him. *Floral Mechanism* by S. G. Jones, Blackie and Son, London; \$4.00, is obtainable in this country through The Chemical Publishing Co., New York City and falls in line with this thought very nicely.

The subject throughout is religiously confined to the flower, its parts and workings. The material is divided into two main parts, the first treating generally of the botany involved and even touches on hybridization and plant breeding. The second part treats specifically of twenty-two families and several odd genera. The many cuts and diagrams are exceptionally well done and of good scale, so that the amateur can clearly see how things are florally, while the text tells what happens.—R.S.H.

There are 411,571 acres within that portion of the Cleveland National Forest lying within the County of San Diego, 186,080 acres of which are privately owned.

Notes on Native Plants . . .

By ESTER CLARE JOHNSON

ROMNEYA coulteri: Should you buy a Matilija poppy, the name by which it is commonly known, it will probably be in a tin can. The plant will be anything from six months to a year old, and the trick in planting it so it will live and fulfill its destiny in your garden is in knowing what not to do with it. Do not remove it from its container. Take your can opener—the common or garden variety is best—and cut around the bottom of the can, making the cut just above the bottom, not under the can. Then ease can and all into the hole you have prepared for the plant, being careful that there is no disturbance of the soil in the can. The bottomless can will give the young plant all the freedom it needs and the tin will decay and become a part of the soil in a short time.

The reason for this procedure has to do with the peculiar nature of the Matilija roots, which in its young life are practically nonexistent. The large fleshy root from which the plant springs feeds the plant adequately, but no fibrous roots worth mentioning will form during the first year. (I know because I have dug them up to see). As the plant is at all times resentful of any meddling with its root system, the lack of fibrous roots makes it practically impossible to remove the plant from its container without an unpleasant reaction following. Plant can and all and save your Matilija.

CALAMINTHA chandleri: The very attractive little plant of which Mr. Gander wrote so interestingly in the last issue of *California Garden* will not be accorded its more recent name, *Satureja chandleri*, in my own private dictionary. Surely nothing could be more pleasing than the name Professor Brandegee bestowed upon it. There is little profit in arguing about the name of a plant, but there is a good deal of pleasure in feeling that the plant has a fitting and euphonious name that may be used without

breaking the law. So, *Calamintha* it is with us.

Try it in your rock garden, if not in the spot definitely devoted to herbs. It is delightful from every angle, with a fragrance not to be described, and quite puts to shame our domestic mints.

ZAUSCHERIA californica: *California Fuchsia* it is commonly called, and is one of the really good little plants for the dry spot in the garden where a small plant is needed. Its soft, sagey green is always pleasing and the bloom is arresting. A bright spot where a dash of color is needed.

ARTEMISIA tridentata: Those of you who are familiar with *Artemisia* silver king and who appreciate its silver beauty, will like this little native plant. The color is identical with the silver king variety, with the sharply cut foliage that distinguishes its cousin, but it is somewhat smaller in form. It likes the sun and can take a lot of neglect. Good in the rock garden, or as an accent anywhere.

We thank Mr. Hugh Evans of Santa Monica for the following notes as corrections.

The first *Fuchsia*, *F. triphylla* was discovered in the West Indies in 1708 by the French Botanist Plumier, who named the genus after Leonard Fuchs, who was a German botanist, born in 1501 and died in 1568. So it is incorrect to say that the *Fuchsia* was discovered by Fuchs.

The first *Fuchsia* introduced into England was either *Fuchsia Magellanica* or *Fuchsia coccinea*, brought in by a sailor off a ship in 1788. There was no considerable number of species or hybrids cultivated until the beginning of the nineteenth century.

The 248 fires on the Cleveland Forest since 1931 cost \$71,957 to suppress or an average of \$290 per fire.

Foliage for the Grey Garden

By K. O. SESSIONS

It is interesting to note that the foliage of the real desert is always very light gray. The small Creosote shrub, a bright green, and the Palo Verde (green stick), a small tree, are exceptions. The Creosote bush has small bright yellow flowers in late spring, and the Palo Verde *Parkinsonia aculeata* is dainty and feathery, a small tree bearing choice yellow, orchid like blooms during the summer. Now in late summer it is showing its dainty blooms that keep well as cut flowers. It grows readily, and every garden should have it.

Gray foliage plants fit in any good garden well—not many, but a specimen plant in a few places, and a list is offered—

First the gray native coast shrub, *Atriplex breweri*, growing close to the shore above Oceanside, is so desirable for a good hedge close to the shore or beaches. It makes a superior hedge 4 to 8 feet high, as desired, clean, without old flowers or seed pods, and is easily kept well trimmed and in perfect shape. It is also hardy and drought resistant.

Santolina chamaecyparissus is one of the most permanent and long lived low border plants that stands pruning. It is also good as an individual specimen plant 2 to 2½ feet or even 3 feet high, kept sheared occasionally and never allowed to bloom. It is very decorative, especially near rocks—as by stone steps, or a rock wall, or a post. The dainty feathery King's Wreath has choice gray foliage, and pretty flowering sprays to use with cut flowers. The Dusty Miller, *Centaurea*, has almost white foliage and those with the ornamental leaves are very useful in cut flower arrangements. The low and bushy growers make good permanent borders. The "Silver King" has fine feathery foliage and dainty blossoms in large sprays. They are propagated by offsets or root division.

Gomphospermum canariensis, is

new, recently found at San Francisco and originally coming from South Africa. It has very lace like beautiful foliage, and grows thriftily to a height of 5 feet. The flowers are very insignificant. The plant will need yearly pruning to keep it in shade, and compact. It is useful for its fine effect in the garden, and for its choice cut foliage. It looks especially well with pink flowers, such as pink roses, carnations, or heathers.

Leucophyllum texanum has a very tomentose foliage, and bears a dainty small pink flower. It is useful as an ornamental shrub or hedge. It is a native of the great Rio Grande valley, where it is a beautiful sight when in bloom. The most striking gray foliaged plant is the famous Silver Tree.

Leucadendron argentea, a native of the Cape of Good Hope, South Africa, where it grows on Table Mountain. Mrs. John Nuthall may have the best young tree in San Diego. It is quite drought resistant, but must have perfect drainage for all the water that it receives. Not only are the leaves like silver, the silky hairs are over the cones that are borne on the pistillate plants, for the plant is dioecious. The stamens are attractive large round balls like a good sized walnut. Planted on sloping ground, the drainage would be more perfect, and the tree would stand for a long time. If this tree could become established on top of Table Mountain in Lower California, it would be a very great attraction to every tourist and horticulturist. It bears a very remarkable seed that is prepared to fly away from its mother cone when ripe. There is a choice gray foliage *Mesembryanthemum* that grows very rapidly, and bears large choice pink and white flowers.

The common *gnaphalium* is an excellent small gray shrub that stands frequent pruning. It is best used as an individual or a low hedge, about 30 inches high at the most.

—K. O. Sessions.

The Pacific Beach Garden Club was called to order at 6:30 P. M., July 24, by the president, Mrs. Biehl. The meeting followed a picnic supper in the court yard of the Houses of Pacific Relations in Balboa Park.

Mrs. Walmsley, acting as secretary, read the minutes of the previous meeting, which were approved.

Mrs. Biehl made a short talk for the benefit of the guests present, giving them an idea of the club's activities and projects. She introduced Mrs. Brown, the new president of the La Jolla Garden Club.

Mrs. Walmsley, as program chairman, introduced the special guests, Mr. John Morley, Mr. George Marston, Mr. Roland Hoyt, and Miss Kate Sessions.

Mr. Morley, former superintendent of Balboa Park, said a few words about the park, and its "mother and father," Miss Sessions and Mr. Marston.

Mr. Marston reminisced as he recalled old times when Balboa Park was a "child," and how, starting in 1903, our great park was developed. Mr. Marston said that Balboa Park is a cultural center, a hospitality center, and most important, a civic university. "The park, as one of the most distinctive features of San Diego, has a wonderful future, but conservatism must be practised, especially in regard to the buildings in the park."

Mr. Roland Hoyt, landscape architect and author, told the club how happy he felt at being present to hear San Diego's pioneers recall old times, and visualize future times.

Miss Sessions made a plea for making Pacific Beach the "Flower Emporium" of the city. She stated that Pacific Beach has the best soil and the least fog of any spot in San Diego. She also asked for help in building up Pacific Beach's Color Park on Lamont Street. She showed specimens of plants that would grow especially well in Pacific Beach.

After thanking the speakers, Mrs. Biehl announced that the next meeting, on August 28 would be an opportunity for Zinnia fans to display their blooms.

Harvesting Dahlias

By M. C. Pfefferkorn

After the plants turn brown, select a sunny day, cut the stalks down to within a foot of length, then dig up carefully, so as not to break the necks of the newly formed tubers, leaving plenty of soil around the roots. Use a potato fork for digging and make sure that you dig on all sides of the plant before lifting the clump out of the ground. Be careful not to pierce the tubers and never attempt to lift the clump out by the stem as many tubers may be damaged. After being lifted, cut the stem to about 1 inch above the crown of the clump, and let the latter dry 2-3 hours; then turn clump upside down for additional drying.

Years of experience have given me good reasons to believe that dividing clumps immediately after having been dried, into halves, or even four parts is of real advantage. Even after clumps are thoroughly dried, there seems to collect a certain amount of moisture within the crown which in most cases does not dry up and becomes the cause of decay, stem rot and hence the loss of many tubers; it is surprising to notice how much sap is eliminated from a clump after a division. Dust the parts cut with dry sulphur, place the divisions in a partly shaded place with the cuts facing the light and after two days put away carefully in boxes over the winter in a dry, cool place. Spread a layer of wood-shavings or peat-moss, then spread divisions and repeat again until the box is filled.

About April first begin to cut tubers from the clumps. Where an eye appears in the middle of the tuber, one tuber is sufficient; sometimes the eye appears exactly between two tubers when both tubers must be cut from the mainstem. It is surprising to learn that even professional gardeners who never handled dahlia clumps before, do not know that cutting the tuber with part of the mainstem is absolutely necessary.

Contrary to belief, large tubers

(Continued on Page 8)

Problems of the Soil

By R. R. McLEAN, County Agricultural Commissioner

Gumming of Italian Cypress

Question: On a place I take care of in Loma Portal an Italian cypress is gumming badly causing large branches to die entirely. What could be the possible cause and is there a remedy? R.R.L.

Answer: The growing of Italian cypress in this locality is becoming increasingly difficult. At least five different insects prey upon ornamental cypress trees here, both Italian and Monterey and if attacks are severe enough, the trees may die or at least be badly injured. Some of the insects referred to mine the needles or bore into the axils of small twigs or work under the bark of twigs, branches, and trunk. The latter do the most serious injury but usually do not attack trees until they are weakened from other causes.

One of the most general causes of the death of cypress tree branches is unfavorable soil conditions, due to shallow soil and excess or lack of water. Many of our local soils are not very deep and as a result drainage is often poor. Italian cypresses are often planted in or around lawns and as the latter must be irrigated frequently, the cypresses get too much water. They can withstand considerable water if the drainage is good, but where it is poor and excessive amounts stand around the roots for long periods, it means ultimate death to the trees. Trees thus weakened by excessive irrigation water fall a ready prey to insect attack.

Black Spots on Palms

Question: For quite a long time I have been having trouble with my fan palms out in the parking. The lower leaves are covered with large irregular, black spots that seem to be slightly raised. After a while these leaves will begin to look badly and die sooner than they should. Can you tell me what is wrong and what I can do about it. Mrs. A.

Answer: Presumably your "fan" palms are the Washingtonias, as they are often used in parkways in San Diego. Unfortunately Washingtonia palms in San Diego and along the coast are nearly always affected by a fungus disease known as black spot or *Sphaerodithis neowashingtonia*. No other common name is known to the writer. The disease is of much less importance away from the cool, moist coastal districts.

Very little experimental work has been done in the control of black spot, probably because of its rather limited distribution, at least as far as severe damage is concerned. However, along the north coast in this country repeated spraying with Bordeaux mixture has been of some advantage, particularly when the lower heavily infected leaves are promptly and regularly removed. No spray of any kind will control or eradicate the disease on leaves already attacked, but if applied regularly and thoroughly, Bordeaux will probably in large measure protect the newer fronds from infection as they unfold. Bordeaux mixture will to some extent disfigure the palms with a bluish or greenish residue, but most other effective fungicides, as lime-sulphur solution, will do the same. It is well worth trying, at any rate. Remove all the lower heavily infected leaves and spray the balance of the palm thoroughly, repeating at intervals of several weeks. However, even if you do your work well and succeed in checking the disease, your palms will become re-infected from others should there be any uncared palms in the near vicinity.

Sterilizing Soil

Question: I have had much trouble with the roots of various flowers in two beds. Think there must be some disease in the soil. How can I sterilize it and with what material? Please give directions. A.S.B.

Answer: Carbon bisulphide and
(Continued on Page 8)

August Meeting

Mrs. Mary A. Greer, president, presided at the regular August monthly meeting of the San Diego Floral Association after an absence from the club at the previous meeting. In her opening remarks she gave an interesting resume of her visit to the floriculture section of the San Francisco Fair—the Shasta daisies in size and quantity, and the wild flower exhibit were mentioned as most beautiful. Miss Kate O. Sessions suggested that members and friends bring Shasta daisies to the Fall Flower Show, August 26th and 27th, making a collection of the different varieties.

Miss Sessions, showing many beautiful slides and describing the flowering trees of Honolulu told of the pink shower trees, also the yellow ones, and advised that San Diego have them growing in Balboa Park.

"Orchids" was the subject of the talk given by Mr. N. J. Pope who has always been interested in this truly marvelous flower, and all who listened to his valuable discourse were assured of an unusual knowledge obtained by his study and information. With numerous colored slides Mr. Pope first explained the plant structure of orchids. The showy flowers have corollas of three petals, one, the lip, differing greatly from the others is often spurred. The well-known lady-slippers are the most beautiful and largest of our native orchids. The ladyslipper lip or sac, is found to be less than half an inch long in the small-flowered species, or an inch and half in the moccasin flower and the showy and yellow lady-slippers.

Pictures were shown of numerous orchids which offer pouch-like "landing fields" for the pollen-bearing insects which may be attracted by the colour and perfume of the flower. Guided by hairs or ridges, an insect is led to the orifice of the spur where is found honeyed juice, and the position of the orifice being at the base of the lip, the insect while inserting the proboscis into the spur strikes its head and displaces the pollen-masses,

the pollen adheres to the head or back of the insect and is taken to another flower. Many faintly familiar names took on a new significance as Mr. Pope discussed Orchis, Cypripedium, Cattleya, Stanhopea, Dendrobium, Cymbidium, Oncidium and other genera.

Announcement was made by Mrs. Clark of the garden contest, that the judging of gardens would take place on August 30th.

A drawing, by numbers, of choice potted coleus plants donated by Mr. and Mrs. Heermance concluded the club's program. —G.M.G.

RAIN IN THE TREES

It comes as a blessing
And a gentle caressing,
The song of the rain in the trees,
So softly it holds one,
So sweetly enfolds one,
It seems like a whispering breeze—
The rustle of rain in the trees.

The leaves faintly stirring,
The sound low and purring,
The quiet melodious rain
Brings peace and repose
As it tranquilly flows
To the song of the rhythmical strain—
The quiet melodious rain.

Born so smoothly along
On the wings of the song
Of the murmur and music of rain,
The troubles that prey
Are wafted away
Through the trees, by a
soothing refrain—
The murmur and music of rain.
—Katherine V. Lewis

COOPER'S GARDENS

On Sunday, July the 24th, the San Diego Floral Association had the pleasure of visiting the Cooper Gardens at 4519 Kensington Drive.

In their parkway are four graceful Cocos Plumosa Palms, a verdant lawn which extends to the foundation planting of the dwelling; here were two trimmed Boxwood, dwarf Pomegranates, lavender Lantanas and a mixture of other flowers.

On the south side, more lawns

and along the dividing line, Dahlias, Zinnias, Salvias and Petunias.

Upon entering the rear yard, you first come into a little nook where are placed comfortable chairs, that you may sit and enjoy the plant life or have a friendly chat with the owners.

Along the south are two Acacia Baileyans, an Acacia Tetinodes and a Monterey Pine. Beneath these trees are tiers of potted Rex Begonias with their wonderfully colored leaves, Velvet-plant, Mother Speenworts, Blood-leaf, with greenish-red leaves, Glory Bower, Ivy Geranium, variegated Cissus, Creeping Viburnum and violet-blue Achimenes.

In the center of the yard there is a charming spot, with a little lily pool and a small summer-house to the north of the outdoor living room, gorgeous Coleus, Calla-lily Begonias and in old decayed tree trunks were Maiden-hair Ferns.

On the north side of the place is a larger lathhouse; upon entering it was like stepping into Fairyland with varieties of Fuchsias, profusely laden with flowers. Amongst these were fibrous Begonias and Ferns, also many other plants, bringing joy to the gardener's heart as well as the observer.

Besides the indoor plants, there is a cactus and succulent garden. In this plot there is a miniature garden, containing a bungalow with a garage, cement walks and driveway, auto, a garden hose, even to the family wash on the line.

I have only mentioned a few of the delightful things to see. Most of the visitors were surprised at the number of plants grown in such a small place; their effect cannot be adequately described. The display must be seen to be appreciated.

—By C. I. Jerabek.

BACK NUMBERS

Call is made for old issues of the California Garden, the year 1912, months of February, March, April, May, June, July. This is in the interest of incomplete files. Copies may be sent to Alice Greer, 2972 21st St., San Diego.

Labels Made Legible

The best method of labeling wooden tree or plant tags or small stakes for pots, in my experience, has been to use white lead paint as the base and to letter or write with a black asphaltum base paint. This latter has great penetration and both are reasonable in cost. Do not use white zinc oxide nor common black paint.

This black asphaltum paint should not be diluted with turpentine or other thinners as is most paint. If it is too thick to flow freely, it may be warmed up a little. This is preferably done in heated water since the material is inflammable. This paint is naturally rather thick and does not readily flow from the pen, so that the tip should be dipped often into the lettering medium.

In lettering ordinary tree tags, one may use a common pen point, but for larger tags or the 12-inch garden stake, the better pen to use is the No. 4 speed ball point. These points come in larger sizes for sign painting.—Dewey Kelly.

Inside Soils

(Continued from Page 1)

how much water soils should contain. As the amount of water present in a given soil also varies from time to time, it is likewise impossible to state the amount of water that should be applied per irrigation. The amount to be applied, therefore, in order to achieve the "half water and half air" condition after the water has distributed itself thru the soil by gravitation, must be determined by the trial and error method. Having this objective in mind will ultimately achieve best results over a period of time, and the careful irrigator will develop an effective system, i.e. amount of water and frequency of application in a relatively short time.

The point may occur to some that inasmuch as plants differ in their water requirements, corresponding amounts of water should be applied. This is true only insofar as

the depth of soil occupied by plant roots is concerned. The "half and half" condition should extend to the effective depth of the root zone. Shallow rooted plants like grass need to have the soil water only to a depth of fourteen to sixteen inches. Normal sized shrubs do best with an effective soil depth of two feet or more. Small fibrous rooted trees such as oranges will utilize four or more feet of soil, and large trees such as walnuts eight feet or more. It should be noted that the soil moisture below four feet varies but slowly and hence excessive amounts of irrigation water are not needed to achieve the "half and half" condition even for large trees. All plants with similar root zones or a given soil can extract the soil water to the same point, called "wilting point." Also they can all utilize soil water above the wilting point. Consequently the "half and half" condition is the only necessary practical objective. A soil auger is useful in determining soil water conditions, except on stony land, where a pick and shovel are the best instruments for getting soil samples. If plants become yellow, or stunted, look first to soil-water conditions. A final rule: "Never put water on a wet soil." The reason is the obvious result upon the soil-air relationship.

Eric E. Eastman,
County Agent
U. S. D. A.

GARDENS ON PARADE

More than five acres of specialized gardens, period gardens, all manner of gardens along the Flushing river at the New York Worlds Fair testify to something—what is it—this?

"An interest in the technique of gardening is becoming one of the happiest resources of the American people and is surging across the country. It has shown itself in the growing membership of horticultural societies and the increasing number of garden clubs. The attendance of the spring and autumn flower shows which have become an American event in our larger cities, becomes greater each year."

September Garden

By Walter Birch, Jr.

September is about the best month to start your perennials, which if planted this month will bloom next Spring and Summer. Such things as: Delphinium, Foxglove, Columbine, Coreopsis, Cyclamen (if you have enough patience to give the seed time to germinate, about six weeks) Pentstemon, Pyrethrum, Perennial Poppies, Gaillardia, Wallflower, Viola and Verbena.

Sweet Peas may well be planted this month and it is hard to find anything that will give the grower more satisfaction than a nice long row of these beautiful flowers. One must be sure to get the Early Flowering Spencers, sometimes called Winter or Christmas Flowering. For best results spade up the ground to a depth of eighteen inches and fertilize well, some Vigoro will do very well. Leave the trench about six inches deep and fill it up with water, after the water has soaked in plant your seed right in the mud, covering them with about an inch of dry soil and don't water again until they are well up. You will get a much better germination this way. Inoculating the seed, before planting, with Nitragin or other nitrogen producing bacteria always seems to have a beneficial effect on the growth and consequently the health of the Sweet Pea plants.

Other Annuals that may go in the ground this month include: Stocks, Snapdragons, Calendulas, Annual Canterbury Bells, Phlox Drummondii, Cinerarias, Scabiosas and Poppies.

A number of Bulbs are in season this month: Gladioli, Colchicum or Autumn Crocus, Anemones, Ranunculus which now come in the separate shades of red, yellow and pink shades, also Freesias in an assortment of colors and the sweet scented white ones.

October is the main bulb month so more about them later.

There were 248 reportable fires on the Cleveland Forest since 1931 or an average of 31 fires annually.

A Rare Yucca

Differing from other Yuccas because its flower spikes are pendent instead of upright, the species known as *Yucca australis* is one of the largest of the genus. The great panicles of white flowers, which look like gleaming waterfalls, can be seen for miles in the clear atmosphere of its habitat in Mexico. Discovered in 1840 by Dr. Josiah Gregg, Santa Fe trader and author of works on the Southwest, in the vicinity of Saltillo in north-eastern Mexico, these tree-like plants abound on the sloping arid plains from about sixty miles south of the international boundary line to as far south (in scattered localities) as San Luis Potosi. *Yucca australis* can be transplanted with relative ease. Specimens have been propagated without difficulty in the Desert Plant Garden, some, planted in 1909, having attained a height of approximately thirty feet. Several are now in bloom and may be seen from the main walk of the Garden.—Bulletin, Henry E. Huntington Botanical Gardens.

Harvesting Dahlias

(Continued from Page 5)

do not produce immense sized flowers; smaller tubers are preferable. Often large roots are cut in half in which case the part cut is covered with a dusting of powdered sulphur. After 2-3 days a coat is formed over the part cut and the tuber is ready for planting. (I always cut part of the old tuber or mark it with indelible pencil to distinguish it from the newly formed tubers the following year.) The same root should never be planted more than twice, for the third year it turns into a woody substance of no value.—Mouney G. Pfefferkorn.

Problems of the Soil

(Continued from Page 5)

formaldehyde are two good sterilizers. Carbon bisulphide is a little more expensive, but after using it the ground can be used sooner than

if formaldehyde were applied. To use the carbon, inject about two ounces to every square foot, making the injection two or three inches deep and covering up with earth. Formaldehyde is applied in a 1¼ per cent solution, that is, 1¼ pints of formaldehyde should be diluted with 98¾ pints (about 12½ gallons). One gallon of the diluted material is sufficient to sterilize one cubic foot of soil. Neither carbon bisulphide nor formaldehyde should be used within several feet of plants whose roots may possibly be in the zone treated.

Ground sterilized with carbon bisulphide can be replanted within a week, but if formaldehyde is used a period of weeks, or possibly months, may have to elapse. You should be able to detect no odor of formaldehyde whatever when you replant.

Garden Tutti-Fruitti

Mix well the Love Of The Big Out-of-Doors with the Love For Flowers and let them simmer gently over the fire of Imagination until very tender. Add the Desire For A Garden and stir constantly until well blended. Remove from the fire and beat into this equal quantities of Resolution and Determination. Allow this to crystallize . . . Prepare one part each of Love Of Work and Joy In Creating and spread evenly over the first mixture, allowing this to gradually soak in . . . Now cream equal parts of Love Of Conquest and Love Of Experiment and season well with Persistence. Drain off all Hesitation and Vascillation and dredge with Fancy.

Combine all the ingredients, fold in Patience and then turn into molds of Watchfulness dipped in Hope. Pile in mounds of Gratification, sprinkle with Expectation, and serve with Vigilance sauce flavored with Ecstasy.

Note . . . these directions for those who crave the Satisfaction garden tutti-fruitti are given for and Peace of a garden.—K.V.L.

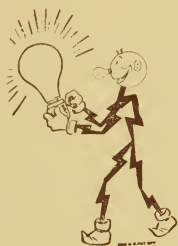
The gross area of Cleveland National Forest is 566,068 acres.

Root Formation Enforced by Artificial Means

The Application of Synthetical Hormones in Horticulture

It has been proved beyond criticism that a great number of vital processes in man and animals depend on the presence of certain substances, the so-called hormones. These substances are effective even if they are present in only minute traces. As the result of biological research this knowledge was applied also to the great vegetable kingdom. The growth, flowering and fruit bearing of plants and also the healing of wounds is promoted and facilitated by these substances which are formed in the plant itself. Now, if there are hormones which promote the processes mentioned it ought to be possible to make them serviceable to horticulture. It has been known a long time ago that cuttings in which the rooting was difficult, this process could be promoted by sticking them into pulpy parts of plants, or by splitting them and putting a grain into the fissure. Today it has been proved that germinating grains of cereals contain a considerable amount of root forming hormones. A short while ago scientists even succeeded in producing synthetically the hormones necessary for the rooting of cuttings. The results of the experiments have proved that the hormone preparation has a promoting effect on the formation of roots. It ought to be possible therefore to assist the horticulturist in his work to a considerable extent by means of such hormones and to increase the favorable chances in vegetative plant propagation. How far such hopes have been realized—a question which equally interests the horticulturists of the U. S. and of foreign countries—was one of the problems at the XIIth International Horticultural Congress held at Berlin last August 12 to 17.

S. D. Floral Association meeting held third Tuesday of each month at Floral Bldg., Balboa Park, 7:30 p. m.



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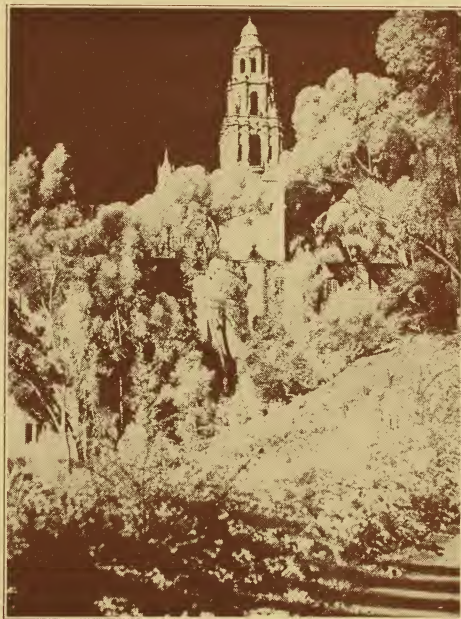
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